



10/525,559

IFW

1641

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: John P. Wikswo, et al. Confirmation No.: 9529
Serial No.: 10/525,559 Group Art Unit: 1641
Filed: October 24, 2005 Docket No.: 14506-48686
Title: Capillary Perfused Bioreactors with Multiple Chambers

CERTIFICATE UNDER 37 CFR 1.8:

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on July 13, 2006.

By: 
Name: Tim Tingkang Xia

TRANSMITTAL

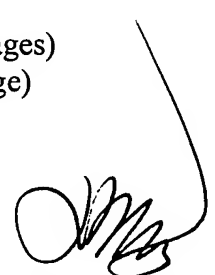
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

We are transmitting herewith the attached:

- ☒ Transmittal Sheet containing Certificate of Mailing (1 page)
- ☒ Information Disclosure Statement (37 C.F.R. § 1.97(b)) (2 pages)
- ☒ Form PTO-1449 Listing Seventy-Five (75) References (4 page)
- ☒ Copies of Seventy-One (71) Non-Patent References
- ☒ Return postcard

MORRIS, MANNING & MARTIN, LLP
1600 Atlanta Financial Center
3343 Peachtree Road NE
Atlanta, Georgia 30326
404.495.3678
Customer No. 24728

By: 
Name: Tim Tingkang Xia
Reg. No.: 45,242
TX



S/N 10/525,559

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: John P. Wikswo, et al. Confirmation No.: 7090
Serial No.: 10/525,559 Group Art Unit: 1641
Filed: October 24, 2005 Docket No.: 14506-48686
Title: Capillary Perfused Bioreactors with Multiple Chambers

CERTIFICATE UNDER 37 CFR 1.8:

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on July 13, 2006.

By: 

Name: Tim Tingkang Xia

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Customer No. 24728

SUPPLEMENTAL INFORMATION
DISCLOSURE STATEMENT (37 C.F.R. § 1.97(b))

Dear Sir:

With regard to the above-identified application, the items of information listed on the enclosed Form 1449 are brought to the attention of the Examiner.

In accordance with 37 C.F.R. §1.98(a)(2), a copy of each non-U.S. patent document or other information listed on the enclosed Form 1449 is provided herewith, if applicable.

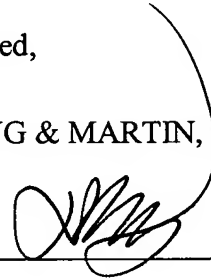
No representation is made that a reference is "prior art" within the meaning of 35 U.S.C. §§ 102 and 103 and Applicants reserve the right, pursuant to 37 C.F.R. § 1.131 or otherwise, to establish that the reference(s) are not "prior art." Moreover, Applicants do not represent that a reference has been thoroughly reviewed or that any relevance of any portion of a reference is intended.

Consideration of the items listed is respectfully requested. Pursuant to the provisions of M.P.E.P. 609, it is requested that the Examiner return a copy of the attached Form 1449, marked as being considered and initialed by the Examiner, to the undersigned with the next official communication.

Respectfully submitted,


MORRIS, MANNING & MARTIN, LLP

July 13, 2006



Tim Tingkang Xia
Reg. No. 45,242
Attorney for Applicant on the Record
TTX

MORRIS, MANNING & MARTIN, LLP
1600 Atlanta Financial Center
3343 Peachtree Road, N.E.
Atlanta, Georgia 30326-1044
Phone: 404-233-7000
Direct: 404-495-3678
Customer No. 24728

 INFORMATION DISCLOSURE STATEMENT IN AN APPLICATION (Use several sheets if necessary)	Docket Number: 14506-48686	Serial Number: 10/525,559
	Applicant: John P. WIKSWO et al.	Date Mailed: July 13, 2006
	Filing Date: October 24, 2005	Group Art Unit: 1641

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	B1	5,443,985	08/22/95	Lu et al.			
	B2	5,635,358	06/03/97	Wilding et al.			
	B3	6,171,239	01/09/01	Humphrey			
	B4	6,440,645	08/27/02	Yon-Hin et al.			
	B5	2002/0058329A1	05/16/02	Singh et al.			
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION
							YES NO
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)							
	B6	ALLEN et al., "Improving the Next Generation of Bioartificial Liver Devices," Seminars in Cell & Developmental Biology, 13, 447-454, 2002.					
	B7	AUGENSTEIN et al., "Effect of Shear on Death of Two Strains of Mammalian Tissue Cells," Biotechnol. Bioeng. , 13, 409-418, 1971.					
	B8	BEETON et al., "A Novel Membrane Bioreactor for Microbial-Growth," Appl. Microbiol. Biotechnol. , 40, 812-817, 1994.					
	B9	BHUIJWALLA et al., "Combined Vascular and Extracellular PH Imaging of Solid Tumors," NMR Biomed., 15, 114-119, 2002.					
	B10	BLACK et al., "Diblock Copolymers: Self-Assembly for Applications in Microelectronics," Encyclopedia of Materials : Science and Technology, Buschow, KHJ, ed. Elsevier, New York, 1-6, 2002.					
	B11	BLACK et al., "Tuominen, M. T. , Integration of Self-Assembled Diblock Copolymers for Semiconductor Capacitor Fabrication," Appl. Phys. Lett., 79, 409-411, 2001.					
	B12	BORENSTEIN et al., "Microfabrication Technology for Vascularized Tissue Engineering, Biomedical Microdevices," 4, 167-175, 2002.					
	B13	BOYDEN, S., "The Chemotactic Effect of Mixtures of Antibody and Antigen on Polymorphonuclear Leucocytes," J. Exp. Med., 115, 453-466, 1962.					
	B14	BROWN et al., "Improvements to Parallel Plate Flow Chambers to Reduce Reagent and Cellular Requirements," BMC Immunology, 2, 9-16, 2001.					

EXAMINER	DATE CONSIDERED
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form for next communication to the Applicant.	

FORM 1449 INFORMATION DISCLOSURE STATEMENT IN AN APPLICATION (Use several sheets if necessary)	Docket Number: 14506-48686	Serial Number: 10/525,559
	Applicant: John P. WIKSWO et al.	Date Mailed: July 13, 2006
	Filing Date: October 24, 2005	Group Art Unit: 1641

B15	CINAMON et al., "A Real Time in Vitro Assay for Studying Leukocyte Transendothelial Migration Under Physiological Flow Conditions," J. Immunol. Methods, 273, 53-62, 2003.
B16	DE BARTOLO et al., "A Novel Full-Scale Flat Membrane Bioreactor Utilizing Porcine Hepatocytes: Cell Viability and Tissue-Specific Functions," Biotechnol. Prog., 16,102-108, 2000.
B17	DING et al., "Chemokines Stimulate Human T Lymphocyte Transendothelial Migration to Utilize VLA-4 in Addition to LFA-1," J. Leukoc. Biol., 69, 458-466, 2001.
B18	DRIOLI et al., "Biocatalytic Membrane Reactors, Applications in Biotechnology and the Pharmaceutical Industry," Taylor & Francis, London, Philadelphia, 1999.
B19	DUPIN et al., "Impact of Colony Morphologies and Disinfection on Biological Clogging in Porous Media," Environ. Sci. Technol., 34, 1513-1520, 2000.
B20	DUPIN et al., "Mesoscale and Microscale Observations of Biological Growth in a Silicon Pore Imaging Element," Environ. Sci. Technol., 33, 1230-1236, 1999.
B21	FALK et al., "A 48-Well Micro Chemotaxis Assembly for Rapid and Accurate Measurement of Leukocyte Migration," J. Immunol. Methods, 33, 239-247, 1980.
B22	FINK et al., "Chronic Stretch of Engineered Heart Tissue Induces Hypertrophy and Functional Improvement," FASEB J., 14, 669-679, 2000.
B23	FOLKMAN et al., "Tumor Angiogenesis-Therapeutic Implications," N. Engl. J. Med., 285, 1182-1186, 1971.
B24	GILLIES et al., "MRI of the Tumor Microenvironment," J. Magn. Reson. Imaging, 16, 430-450, 2002.
B25	GODBEY et al., "In Vitro Systems for Tissue Engineering," Ann. N. Y. Acad. Sci., 961,10-26, 2002.
B26	GRIFFITH et al., "Tissue Engineering-Current Challenges and Expanding Opportunities," Science, 295, 1009-1014, 2002.
B27	GRIFFITH, L. G., "Emerging Design Principles in Biomaterials and Scaffolds for Tissue Engineering," Reparative Medicine: Growing Tissues and Organs, 961, 83-95, 2002.
B28	GUARINI et al., "Nanoscale Patterning Using Self-Assembled Polymers for Semiconductor Applications," J. Vac. Sci. & Tech. B, 19,2784-2788, 2001.
B29	GUARINI et al., "Optimization of Diblock Copolymer Thin Film Self Assembly," Advanced Materials, 14,1290-1294, 2002.
B30	GUARINI et al., "Process Integration of Self-Assembled Polymer Templates into Silicon Nanofabrication," Journal of Vacuum Science & Technology B, 20, 2788- 2792, 2002.
B31	HAMMER et al., "Measuring Receptor-Mediated Cell Adhesion Under Flow: Cell-Free Systems," Tissue engineering methods and protocols, Morgan, J. R. and Yarmush, M. L., eds. Humana Press, Totowa, N. J., 543-552, 1999
B32	HEIDEMANN et al., "Angiogenic Effects of Interleukin 8 (CXCL8) in Human Intestinal Microvascular Endothelial Cells Are Mediated by CXCR2," J. Biol. Chem., 278, 8508-8515, 2003.
B33	HEMLINGER, "Acid Production in Glycolysis-Impaired Tumors Provides New Insights into Tumor Metabolism," Clin. Cancer Res., 8, 1284-1291, 2002.
B34	HIGGS et al., "Regulation of Actin Filament Network Formation Through Arp2/3 Complex: Activation by a Diverse Array of Proteins," Annu. Rev. Biochem., 70, 649-676, 2001.
B35	HU et al., "Large-Scale Mammalian Cell Culture," Curr. Opin. Biotechnol., 8, 148-153, 1997.
B36	JACKMAN et al., "Electrochemistry and Soft Lithography: A Route to 3-D," Chemtech, 29,18-30, 1999.
B37	JAIN et al., "Dissecting Tumour Pathophysiology Using Intravital Microscopy," Nature Reviews Cancer, 2, 266-276, 2002.
B38	JONES et al., "P-Selectin Mediates Neutrophil Rolling on Histamine-Stimulated Endothelial Cells," Biophys. J., 65, 1560-1569, 1993.
B39	KAIHARA et al., "Silicon Micromachining to Tissue Engineer Branched Vascular Channels for Liver Fabrication," Tissue Eng., 6, 105-117, 2000.
B40	KLEMKE et al., "CAS/Crk Coupling Serves As a "Molecular Switch" for Induction of Cell Migration," Journal of Cell Biology, 140, 961-972, 1998.

EXAMINER	DATE CONSIDERED
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form for next communication to the Applicant.	

FORM 1449 INFORMATION DISCLOSURE STATEMENT IN AN APPLICATION (Use several sheets if necessary)	Docket Number: 14506-48686	Serial Number: 10/525,559
	Applicant: John P. WIKSWO et al.	Date Mailed: July 13, 2006
	Filing Date: October 24, 2005	Group Art Unit: 1641

B41	LABECKI et al., "Protein Transport in Ultrafiltration Hollow-Fiber Bioreactors for Mammalian Cell Culture," Membrane Separations in Biotechnology, Wang, W. K., ed., M. Dekker, New York, 1- 62, 2001.
B42	LEY, K., "The Selectins As Rolling Receptors," The selectins: initiators of leukocyte endothelial adhesion, Vestweber, D, ed. Harwood Academic Publishers, Australia, 63-104, 1997.
B43	LI et al., "Cortactin Potentiates Bone Metastasis of Breast Cancer Cells," Cancer Res, 61, 6906-11, 2001.
B44	LI et al., "Hexagonal Pore Arrays With a 50-420 Nm Interpore Distance Formed by Self-Organization in Anodic Alumina," J. Appl. Phys., 84, 6023-6026, 1998.
B45	LI et al., "Initial Stages of Tumor Cell-Induced Angiogenesis: Evaluation Via Skin Window Chambers in Rodent Models," J Natl Cancer Inst, 92, 143-7, 2000.
B46	LI et al., "On the Growth of Highly Ordered Pores in Anodized Aluminum Oxide," Chem. Mater. , 10, 2470-2480, 1998.
B47	LIN et al., "Antiangiogenic Gene Therapy Targeting the Endothelium- Specific Receptor Tyrosine Kinase Tie2," Proc. Natl Acad Sci U S A, 95, 8829-34, 1998.
B48	LIN et al., "Inhibition of Tumor Angiogenesis Using a Soluble Receptor Establishes a Role for Tie2," in Pathologic Vascular Growth, J Clin Invest, 100, 2072-8, 1997.
B49	LIN et al., "Inhibition of Tumor Growth by Targeting Tumor Endothelium Using a Soluble Vascular Endothelial Growth Factor Receptor," Cell Growth Differ, 9, 49-58, 1998.
B50	MACNEILL et al., "Toward a New Blood Vessel," Vasc. Med., 7, 41-246, 2002.
B51	MANSKY et al., "Controlling Polymer-Surface Interactions With Random Copolymer Brushes," Science, 275,1458-1460, 1997.
B52	MARTINEZ et al., "Acidic PH Enhances the Invasive Behavior of Human Melanoma Cells, Clinical & Experimental Metastasis," 14, 176-186, 1996.
B53	MCDONALD et al., "Poly (Dimethylsiloxane) As a Material for Fabricating Microfluidic Devices," Accounts of Chemical Research, 35,491-499, 2002.
B54	McDUFFIE N. G. , Cell Culture Bioreactors. In : Bioreactor Design Fundamentals, Butterworth-Heinemann, Boston, 93-119,1991.
B55	MILLWARD et al., "The Vortex Wave Membrane Bioreactor: Hydrodynamics and Mass Transfer," Chemical Engineering Journal and the Biochemical Engineering Journal, 62, 175-181, 1996.
B56	MOONEY et al., "Stabilized Polyglycolic Acid Fibre Based Tubes for Tissue Engineering," Biomaterials, 17, 115-124, 1996.
B57	MUNN et al., "Analysis of Cell Flux in the Parallel-Plate Flow Chamber-Implications for Cell Capture Studies," Biophys. J., 67, 889-895, 1994.
B58	NOLLERT et al., "Hydrodynamic Shear-Stress and Mass-Transport Modulation of Endothelial-Cell Metabolism," Biotechnol. Bioeng., 38, 588-602, 1991.
B59	PAPADAKI et al., "Quantitative Measurement of Shear-Stress Effects on Endothelial Cells," Tissue engineering methods and protocols, Morgan, J. R. and Yarmush, M. L, eds. Humana Press, Totowa, N. J., 577-593, 1999.
B60	PARK et al., "Integration of Cell Culture and Microfabrication Technology," Biotechnol. Prog. , 19, 243-253, 2003.
B61	PASSERAUB et al., "Design, Microfabrication and Analysis of a Microfluidic Chamber for the Perfusion of Brain Tissue Slices," Biomedical Microdevices, 5, 147-155, 2003.
B62	POWERS et al., "A Microfabricated Array Bioreactor for Perfused 3D Liver Culture," Biotechnol. Bioeng. , 78, 257-269, 2002.
B63	RAMOS et al., "Quantitative Measurement of Cell-Cell Adhesion Under Flow Conditions," Tissue engineering methods and protocols, Morgan, J. R. and Yarmush, M. L. , eds. Humana Press, Totowa, N. J., 507-519, 1999.
B64	RENARD et al., "Induced Changes of Leukocyte Slow Rolling in an in Flow Pharmacological Model of Adhesion to Endothelial Cells," Biorheology, 40,173-178, 2003.
B65	ROTH et al., "Characterization of Transendothelial Chemotaxis of T Lymphocytes," J. Immunol. Methods, 188, 97-116, 1995.
B66	SCHULTZ, "Roles of Solute and Heat-Flow in the Development of Polymer Microstructure," Polymer, 32,3268-3283, 1991.

EXAMINER	DATE CONSIDERED
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form for next communication to the Applicant.	

FORM 1449 INFORMATION DISCLOSURE STATEMENT

IN AN APPLICATION

(Use several sheets if necessary)

Serial Number: 10/525,559

Date Mailed: July 13, 2006

Group Art Unit: 1641

[illegible]**Customer No. 24728**

EXAMINER

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form for next communication to the Applicant.